UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/770,113	01/24/2001	Ye Wang	04770-00012	5357

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EXAMINER
JACKSON, JAKIEDA R

ART UNIT	PAPER NUMBER
2655	9

DATE MAILED: 01/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.		**Applicant(s)**
Office Action Summary	09/770,113		WANG, YE
	Examiner		**Art Unit**
	Jakieda R Jackson		2655

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

> A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
> THE MAILING DATE OF THIS COMMUNICATION.
> - Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
>   after SIX (6) MONTHS from the mailing date of this communication.
> - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
> - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
> - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
> - Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
>   earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☐ Responsive to communication(s) filed on _____.

2a) ☐ This action is **FINAL.**   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-18* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☐ Claim(s) *1-18* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on *24 January 2001* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application)
since a specific reference was included in the first sentence of the specification or in an Application Data Sheet.
37 CFR 1.78.

    a) ☐ The translation of the foreign language provisional application has been received.

14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific
reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *3, 5-8* .

4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: .

DETAILED ACTION

Drawings

1.   This application, filed under former 37 CFR 1.60, lacks formal drawings. The informal drawings filed in this application are acceptable for examination purposes. When the application is allowed, applicant will be required to submit new formal drawings. In unusual circumstances, the formal drawings from the abandoned parent application may be transferred by the grant of a petition under 37 CFR 1.182.

Claim Objections

2.   **Claim 17** is objected to because of the following informalities:

> ➢ Missing a period at the end the sentence.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

4.   **Claims 1-3, 9-11 and 13-16** are rejected under 35 U.S.C. 103(a) as being

unpatentable by Hiratsuka et al. (U.S. Patent No. 5,852,805), hereinafter referenced as

Hiratsuka in view of Hilpert (U.S. Patent No. 6,453,282), hereinafter referenced as

Hilpert.

Regarding **claim 1**, Hiratasuka discloses a method for concealing errors detected

(column 2, lines 46-52) in an input audio bit stream (column 1, lines 52-59) said

method comprising the step of:

replacing at least a first part of said erroneous audio segment with a

corresponding part of said stored digital audio bit stream portion (replacing affected

portion with proceeding portion; column 1, lines 60-65) but lacks;

detecting a first beat and a subsequent plurality of beats in the audio bit stream;

defining a first inter-beat interval extending between said first beat and a

(k+1).sup.th subsequent beat;

storing at least a portion of the audio bit stream occurring within said first inter-

beat interval;

detecting an erroneous audio segment occurring in a second inter-beat interval extending between said (k+1).sup.th beat and a (2k+1).sup.th subsequent beat. Hilpert discloses the steps of:

detecting a first beat (detecting a transient) and a subsequent plurality of beats in the audio bit stream (column 1, lines 51-55);

defining a first inter-beat interval extending between said first beat and a (k+1).sup.th subsequent beat (time interval; column 6, lines 18-44); and

storing at least a portion of the audio bit stream occurring within said first inter-beat interval (bit stream stored; column 1, line 62 – column 2, line 6).

Neither Hiratsuka nor Hilpert teach detecting an erroneous audio segment occurring in a second inter-beat interval extending between said (k+1).sup.th beat and a (2k+1).sup.th subsequent beat.

However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to thus modify Hiratsuka's in view of Hilpert such that detects, defines and stores a first beat, subsequent and errors in order to enable reliable detection of transients, and thus simple suppression of pre-echos, in an efficient and simple way (column 3, lines 45-50), by using a likely undistorted portion of the data.

Regarding **claim 2**, neither Hiratsuka nor Hilpert discloses a method wherein `k` is an integer greater than or equal to 2.

However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to thus modify Hiratsuka's in view of Hilpert wherein `k` is an

integer greater than or equal 2 to space these intervals sufficiently far apart to reduce the effect of the pre-echo.

Regarding **claim 3**, Hiratsuka discloses a method wherein said stored audio bit stream portion includes at least one packet (one frame) positioned on at least one said beat (column 8, lines 7-11).

Regarding **claim 5**, Hiratasuka discloses a method for concealing errors detected in an input audio bit stream but lacks the step of detecting a first beat comprising the step of utilizing a window-switching pattern. Hilpert discloses the step of detecting a first beat comprising the step of utilizing a window-switching pattern (column 1, lines 36-55), to enable a finer temporal shaping of the quantization noise.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Hiratsuka's invention such that it detects a first beat comprising the step of utilizing a window-switching pattern to avoid pre-echos (column 2, lines 7-19).

Regarding **claim 9**, Hiratsuka discloses the method for error concealment in a process of digital audio streaming (irregular error), the method comprising the steps of:

providing a bitstream (column 1, lines 52-59) and having a signal with repetitive sequences (repeated intervals (frames); column 1, lines 29-37) but lacks detecting at least two beats extracted from said bitstream and determining an inter-beat interval between said at least two beats. Hilpert discloses the steps of detecting at least two beats extracted from said bitstream (detects transients; column 1,lines 51-55); and

determining an inter-beat interval between said at least two beats (interval; column 6, lines 18-38), in order to avoid pre-echos.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Hiratsuka's invention such that detects and determines beats, order to enable reliable detection of transients, and thus simple suppression of the effects of pre-echos, in an efficient and simple way (column 3, lines 45-50).

Regarding **claim 10**, Hiratsuka discloses a signal having repetitive sequences comprising at least one signal from an audio signal (column 1, lines 21-32).

Regarding **claim 11**, Hiratsuka discloses a method wherein said signal having repetitive sequences including an error pattern (irregular pattern; 60-65).

Regarding **claim 13**, Hiratsuka discloses a method comprising the step of decoding at least a portion of said signal having repetitive sequences (column 1, lines 49-51).

Regarding **claim 14**, Hiratsuka discloses a method wherein said signal having repetitive sequences comprises at least one element consisting of a rhythm (repeated intervals; column 1, lines 29-32).

Regarding **claim 15**, Hiratsuka discloses a method further comprising the step of replacing said error pattern, one representing minimum value (column 1, lines 63-65), but not with music content.

However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to thus modify Hiratsuka's in view of Hilpert such that it

replaces error pattern with music content to use music, since MPEG usually codes music.

Regarding **claim 16**, Hiratsuka does not disclose a method further comprising the step of replacing one said beat with another said beat from a preceding bar.

However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Hiratsuka's in view of Hilpert replacing one beat with another beat from a proceeding bar because the beats would be expected to be similar.

5.   **Claims 4, 6-7, 12 and 17-18** are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiratsuka in view of Hilpert and further in view of Cohen et al. (U.S. Patent No. 6,064,954), hereinafter referenced as Cohen.

Regarding **claim 4**, Hiratasuka in view of Hilpert discloses a method for concealing errors detected in an input audio bit stream further comprising the step of detecting a first beat (Hilpert; detecting transients; column 1, lines 51-55) but lacks the step of computing the variance of the audio bit stream using decoded IMDCT coefficients. Cohen discloses the step comprising computing the variance of the audio bit stream using decoded IMDCT coefficients (column 2, line 57-column 3, line 7), to produce a replication of the signal within the decoder.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Hiratsuka's invention such that it computes the variance of the audio bit stream using decoded IMDCT coefficients to improve error concealment in transform coded digitized audio signals (column 1, lines 6-8)

Regarding **claim 6**, Hiratasuka in view of Hilpert discloses a method for concealing errors detected in an input audio bit stream comprising the step of detecting a first beat for computing the envelope of the audio bit stream (Hilpert; column 1, lines 36-55 and column 7, lines 51-64) but lacks using decoded IMDCT coefficients. Cohen discloses the step of using decoded IMDCT coefficients (column 4, lines 16-30), to produce a replication of the signal within the decoder.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Hiratsuka's invention such that the it computes the envelope of the audio bit stream using decoded IMDCT coefficients to improve error concealment for transform coded digitized audio signals (column 1, lines 6-8),

Regarding **claim 7**, Hiratsuka in view of Hilpert discloses a method for concealing errors detected in an input audio bit stream and detecting a first beat comprising the step of computing the variance of the audio bit stream utilizing a window-switching pattern (Hilpert; column 1, lines 36-55), but lacks the step of using decoded IMDCT coefficients. Cohen discloses the step using decoded IMDCT coefficients and utilizing a window-switching pattern (column 2, lines 36 - column 3, line 7 and column 4, lines 16-30), to allow lower quantization noise.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Hiratsuka's invention such that it computes the variance of the audio bit stream using decoded IMDCT coefficients and utilizing a window-switching pattern to improve error concealment in transform coded digitized audio signals.

Regarding **claim 12**, Hiratsuka in view of Hilpert discloses a method for

concealing errors detected in an input audio bit stream wherein the signal has repetitive

sequences (Hiratsuka; repeated intervals (frames); column 1, lines 29-37) but lacks

including a packet loss from a network and a burst error from a wireless channel.

Cohen discloses a method including packet loss (subtract) from a network

(communication network) and a burst error (error signal; column 1, lines 10-45) from a

wireless channel (column 2, lines 15-18), for more efficient schemes for audio signal

coding.

Therefore, it would have been obvious to one of ordinary skill in the art at the

time the invention was made to modify Hiratsuka's invention such that it includes a

packet loss from a network and a burst error from a wireless channel to improve error

concealment in transform coded digitized audio signal (column 1, lines 6-8).

Regarding **claim 17**, Hiratsuka in view of Hilpert discloses a method for error

concealment in a process of digital audio streaming, said method comprising the step of

storing two consecutive inter-beat intervals (Hilpert; column 1, lines 12-16 with column

6, lines 18-38) of the compressed audio bitstream (Hiratsuka; column 1, lines 12-16) but

lacks that the digital audio stream is in a wireless terminal. Cohen discloses that the

digital audio stream is in a wireless terminal (column 2, lines 15-18), such that the

transmission of the data can take a wide variety of forms.

Therefore, it would have been obvious to one of ordinary skill in the art at the

time the invention was made to modify Hiratsuka's invention such that the terminal was

wireless to expand the versatility of transform coding of digitized audio signals (column 1, lines 6-8).

Regarding **claim 18**, as discussed in connection with **claims 1, 2 and 15**, Hiratsuka in view of Hilpert discloses a memory (Hirastuka; figure 8B, element 52) for error concealment in a process of digital audio streaming (Hirastuka; column 9, line – column 10, line 5 and column 12, lines 1-8) having two consecutive inter-beat intervals (Hilpert; time interval; column 6, lines 18-38) of a compressed audio bitstream (Hirastuka; column 1, lines 12-16) but lacks the memory comprising storing means for storing a signal history of music in a wireless terminal. Cohen discloses storing means (storage devices) for storing a signal history (past samples; column 4, lines 1-5) in a wireless terminal (in a wireless terminal (column 2, lines 15-18), to produce a replication of the signal within the decoder.

However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to thus modify Hiratsuka's in view of Hilpert such that it stores a signal history of music since MPEG usually codes music.

6.   **Claim 8** is rejected under 35 U.S.C. 103(a) as being unpatentable over Hiratsuka in view of Chen et al. (U.S. Patent No. 6,199,039), hereinafter referenced as Chen.

Regarding **claim 8**, Hiratsuka discloses a method for error concealment in a process of digital audio streaming but lacks the step of storing at least a portion of the audio bit stream includes a step of storing said portion in a circular first-in first-out (FIFO) buffer. Chen discloses the step of storing at least a portion of the audio bit

stream includes a step of storing said portion in a circular first-in first-out (FIFO) buffer (column 4, line 66 – column 5, line 1), to produce clock cycles.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Hiratsuka's invention such that it discloses a circular buffer for computing IMDCT transformations and to make the pipeline processing highly efficient (column 4, lines 51-56).
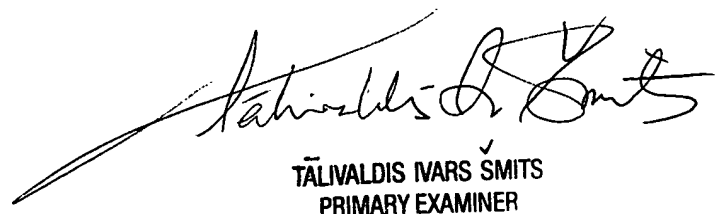
Conclusion

7.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jakieda R Jackson whose telephone number is 703.305.5593. The examiner can normally be reached on Monday through Friday from 7:30 a.m. to 5:00p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Talivaldis I. Smits can be reached on 703. 306-3011. The fax phone number for the organization where this application or proceeding is assigned is 703.872.9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703.305.4700.

JRJ
December 18, 2003

TALIVALDIS IVARS SMITS
PRIMARY EXAMINER